

## **[Automated Vehicle Audit / Assessment & Track Testing Informal Working Group] Terms of Reference**

### **Introduction**

1. The development of technologies that assist drivers of road vehicles with the driving task is advancing rapidly. The global regulatory community has recognised the need to ensure that vehicles fitted with such advanced systems continue to provide a safe and efficient means of transport and so is investigating a completely new assessment regime to provide the reassurance prior to introduction of volume produced vehicles into the marketplace.
2. It is recognised that there is a general lack of practical experience of testing/assessing the functionality of automated driving systems and that the technology will continue to evolve rapidly over the coming years. An Informal Working Group therefore should be established under the auspices of the Working Party on Automated/Autonomous and Connected Vehicles (GRVA). The Informal Working Group will include the widest possible constituency of Contracting Parties and associated/ affiliated bodies, and aim to create a testing regime that is sufficiently flexible to allow regular updates where appropriate.
3. The work of this Informal Working Group will be based on the agreed “3-pillar approach”. It combines a range of elements to cover the evaluation of automated vehicles using;
  - i. Assessing the vehicle in a controlled environment,
  - ii. Auditing the OEM’s processes (including simulation and virtual testing) and the self-declaration, and
  - iii. Testing the vehicle in a real world test.
4. It is well established that different regulatory authorities might apply such new provisions in ways that are consistent with their domestic or regional frameworks, and so the Informal Working Group will investigate and propose ways to ensure the widest approach to the testing solutions and outcomes.

### **Objective**

5. To develop a testing regime and procedure for track testing and audit/assessment that assesses a vehicle’s automated systems so as to realise the road safety and associated benefit under real life traffic conditions based on use-case test scenarios.
6. [To develop procedures that foresee the integration of general system safety requirements like HMI, Minimal Risk Condition, Transition Scenario etc. of the manufacturer’s safety concept]. The aspect of demonstration that the system complies with traffic rules / traffic laws is part of the audit.

7. To develop this testing regime with the understanding that the test track testing and audit/assessment procedures are a building block within the 3-pillar concept and not a stand-alone measure.

It is noted that the decision whether to implement the work as regulation, guidelines or best practices would be left open.

## Activities

8. At a high level, the Informal Working Group will develop procedures to assess road vehicles in traffic situations where;
  - i. Conditional driving automation is used,
  - ii. High driving automation is used, and/or
  - iii. Full driving automation is used.
9. The Informal Working Group will focus on vehicles of categories M and N<sup>(1)</sup> and is empowered to limit those functions and assessments to certain use cases provided adequate measures are implemented within the vehicle to avoid incorrect use by the driver and/or vehicle occupants.
10. The Informal working Group will develop requirements for;
  - i. auditing the manufacturer's development and design processes and for assessing the manufacturers safety concept,
  - ii. testing an automated vehicle on a test track on the basis of appropriate use-case specific test scenarios, and
  - iii. a manufacturer's self-declaration.

These requirements will be elaborated over time. Moreover, the requirements for these blocks may be influenced by the outcome of the audit/assessment/tests conducted.

11. The Informal Working Group will consider new approaches such as those utilising computer simulation or virtual testing techniques to complement the safety assessments while also potentially reducing the burden to manufacturers and approval/ certification bodies.
12. The Informal Working Group should take full account of existing data and research in developing its proposals. It may consider pre-existing standards (e.g. ISO, SAE and JSAE) and UN Regulations/ UN GTRs, and those from other territories in developing its proposals.

## Working Criteria

13. The Informal Working Group recognises that there are three separate general traffic classifications of how a vehicle is used;
  - i. Urban traffic,
  - ii. Inter-urban & rural traffic, and
  - iii. Motorway & highway traffic.

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<sup>1</sup> Including vehicles of category O when combined with vehicles of category N, where appropriate.

The Informal Working Group will work initially on the basis of developing proposals for traffic cases 1 & 3 with traffic case 2 potentially being dealt with in a second phase. However, if the workload of this approach is considered too great or the timescale too long, the Task-Force will submit a revised plan to deliver the outcome in 3 phases of activity.

14. To the extent possible, the testing solutions and outcomes will be evidence-based, and established as performance requirements. The Informal Working Group will aim to provide justifications for the proposed requirements.
15. Consideration will be given as to how the vehicle will recognise its geo-location and the road traffic rules applicable at any point in time, including situations where the vehicle crosses National/State borders and/or boundaries.
16. As a general principle the Informal Working Group will seek to develop relevant detailed technical provisions to be used to assess a vehicle. Nonetheless, and only where absolutely necessary, the Informal Working Group may develop alternative approaches than to specify detailed requirements.
17. The Informal Working Group will proactively liaise with other relevant WP.29 groups, and WP.1 where appropriate, to minimise overlap and ensure consistency of approach. Wherever possible the Informal Working Group will aim to synchronise its meetings with other UNECE meetings to ease the travel burden on delegates.

## **Timescales**

18. The Informal Working Group shall be remitted to work until December 2020.
19. Subject to the Informal Working Group's activities, draft proposals should be submitted to [the September 2020 Session] of GRVA.

Annex: Rules of Procedure...

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## Rules of Procedure

20. The Informal Working Group is subsidiary to GRVA, and is open to all participants of WP29.
21. The Informal Working Group will appoint a chair and a secretary and may create further sub-groups to deal with the technical issues and proposals. In so doing it will agree chairs and secretarial resources among its membership.
22. The official language of the Informal Working Group will be English.
23. All documents and/or proposals must be submitted to the Secretary of the Informal Working Group in a suitable electronic format in advance of the meeting. The group may refuse to discuss any item or proposal which has not been circulated ten working days in advance.
24. An agenda and related documents will be circulated to all members of the Informal Working Group at least ten working days in advance of all scheduled meetings.
25. Decisions will be reached by consensus. When consensus cannot be reached, the chair of the Informal Working Group shall present the different points of view to GRVA as required. The chair may seek guidance from GRVA as appropriate.
26. The progress of the Informal Working Group will be routinely reported to GRVA – wherever possible as an informal document and presented by the Chair or his representative.
27. All documents shall be distributed in digital format. Meeting documents should be made available to the Secretary for publication on the dedicated website.